L. SHUSTER

HOMEBREW COMPUTER CLUB

NEWSLETTER

THIS MONTH - Robert Reiling

A LETTER FROM MITS - Just as the Newsletter was in final preparation a
letter arrived from Bill Gates via MITS. Reproduced (the only MITS
"software" we have ever reproduced) on page 2, it should be read by
every computer hobbyist. Surely many of you will want to write to Bill.
Send a copy of your correspondence to me at the HOMEBREW COMPUTER CLUB
NEWSLETTER, P. O. Box 626, Mountain View, CA 94042 and I will try to
summarize your comments.

CASSETTE UPDATE - Harold Mauch of Custom Design Services wrote Pete
Cornell sending the latest circuit layout developed for the tape
standard adopted at the BYTE Symposium. It's all on page 4 and 5 if,
as Harold states, you would like to "brew your own".

TINY BASIC - PCC's first issue of the Tiny BASIC newsletter is ready.
Volume 1, Number 1 has 19 pages full of information you can use. Pages
2 through 12 have reprints of the important People's Computer Company
articles on Tiny BASIC. Now you can "home brew" your own BASIC; it
will take time but it will be your personal BASIC when it is done. The
newsletter is $3.00 for the first three issues. Write PCC, Box 310,
Menlo Park, CA 94025.

MEETING FACILITIES - Please read the policy of SLAC regarding use of
their facilities. It's on page 3 and important.

SOFTWARE - Tom Pittman helps us again with software information. Check
the DATA FILE, page 7. I would like to increase software material in
the Newsletter and really need some contributions. Send your ideas.
- -
PROBLEMS

VDM-1 - Many people are waiting delivery of the VDM-1 Video Display Module from
Processor Technology Corporation, having placed their order some time ago. Originally
availability was set for December 17, 1975. Delivery was then scheduled for January
15, 1976 and customers with pending orders were notified. As of the end of January,
deliveries had not been completed. How does this happen? It turns out that the
character generator needed is in very limited supply and PTC is awaiting delivery of
these parts. It would appear that patience is a necessary attribute of the computer
hobbyist.

ALTAIR 680 - MITS has decided to immediately upgrade the Altair 680 to its second
generation design. The new design will include additional features at no additional
cost. Delivery dates, according to MITS, will be set back by 30-60 days. If you
have experienced difficulties with a first generation unit, you may want to contact
MITS and discuss the possibility of exchanging it for a second generation design.

February 3, 1976

An Open Letter to Hobbyists

To me, the most critical thing in the hobby market right now
is the lack of good software courses, books and software itself.
Without good software and an owner who understands programming, a
hobby computer is wasted. Will quality software be written for the
hobby market?

Almost a year ago, Paul Allen and myself, expecting the hobby
market to expand, hired Monte Davidoff and developed Altair BASIC.
Though the initial work took only two months, the three of us have
spent most of the last year documenting, improving and adding fea-
tures to BASIC. Now we have 4K, 8K, EXTENDED, ROM and DISK BASIC.
The value of the computer time we have used exceeds $40,000.

The feedback we have gotten from the hundreds of people who
say they are using BASIC has all been positive. Two surprising
things are apparent, however. 1) Most of these "users" never bought
BASIC (less than 10% of all Altair owners have bought BASIC), and
2) The amount of royalties we have received from sales to hobbyists
makes the time spent of Altair BASIC worth less than $2 an hour.

Why is this? As the majority of hobbyists must be aware, most
of you steal your software. Hardware must be paid for, but soft-
ware is something to share. Who cares if the people who worked on
it get paid?

Is this fair? One thing you don't do by stealing software is
get back at MITS for some problem you may have had. MITS doesn't
make money selling software. The royalty paid to us, the manual,
the tape and the overhead make it a break-even operation. One thing
you do do is prevent good software from being written. Who can af-
ford to do professional work for nothing? What hobbyist can put
3-man years into programming, finding all bugs, documenting his pro-
duct and distribute for free? The fact is, no one besides us has
invested a lot of money in hobby software. We have written 6800
BASIC, and are writing 8080 APL and 6800 APL, but there is very lit-
tle incentive to make this software available to hobbyists. Most
directly, the thing you do is theft.

What about the guys who re-sell Altair BASIC, aren't they mak-
ing money on hobby software? Yes, but those who have been reported
to us may lose in the end. They are the ones who give hobbyists a
bad name, and should be kicked out of any club meeting they show up
at.

I would appreciate letters from any one who wants to pay up, or
has a suggestion or comment. Just write me at 1180 Alvarado SE, #114,
Albuquerque, New Mexico, 87108. Nothing would please me more than
being able to hire ten programmers and deluge the hobby market with
good software.

Bill Gates

Bill Gates
General Partner, Micro-Soft

JANUARY MEETINGS

January 7, 1976 - The first meeting of 1976 was attended by a staggering number of computer hobbyists. At least 300 were on hand. A survey of this group revealed that many systems are up and running. Distribution is: Altair 8800 systems - 28; Altair 680 systems - one; 6800 systems - eight; 650X systems - seven; 8008 systems - seven; 4004 systems - one; miscellaneous systems - nine; and nine non-Altair 8080 systems. The group also has 28 computers under construction.

The formation of a non-profit club organization was suggested by some club members. A committee was formed and a date set to look into this in more detail (A charter has been written by this group and is reproduced on page 6).

Bob Marsh of Processor Technology Company generously presented the Club with boards complete with 1702A's ready for use with an Altair. The boards were promptly raffled off to an enthusiastic group with proceeds going to the Club treasury.

January 21, 1976 - Another well attended meeting filling the SLAC auditorium. The "Charter Committee" gave a rundown on the proposed charter which was followed by a lively discussion of pros and cons. A vote on adoption will be held at a future meeting.

As is usual at the meetings those in attendance exchanged ideas, product information, and suggestions.

MEETING FACILITIES

Selling is prohibited at SLAC. For the past ten months or so, the club has been meeting at Stanford Linear Accelerator Center. During that time, the meetings have increased in size from about thirty members to over three hundred. Recently the Director of SLAC has reviewed the club meetings and was pleased to note that, so far, no complaints or problems have been reported. It is the policy of SLAC management to try to allow organizations, of which some SLAC employees are members, to use SLAC meeting facilities, provided these facilities are not needed at the time for any official SLAC business and provided there is no cost to SLAC in such use.

However, SLAC policy does forbid all types of commercial transactions not conducted by or for Stanford University. Prohibited transactions include sale of merchandise, accepting of orders, taking psyments, or making deliveries. Advertising, product displays, distributing literature, making product announcements, or passing out ordering information may be allowed to take place during such meetings as long as no actual transactions occur. Persons who distribute literature are requested to remove unused items when they leave. Parking areas should not be used for any business activities whatever. Questions regarding the use of SLAC facilities should be directed to Mr. Douglas Dupen, SLAC Public Information Office, phone 854-3300, extension 2204.

MEETING SCHEDULE

Meetings are held every two weeks; February 18th, March 3rd, March 17th, etc. Location of the meetings is Stanford Linear Accelerator Center, Menlo Park, California. Meetings begin at 7:00 p.m. Ask the guard at the gate for directions to the meeting room.

CORRECTION - The Intelligent Display For Microcomputers diagram published in the December Newsletter needs two changes as shown in the partial diagram at the right. Line A and line D connections to U9 were reversed.
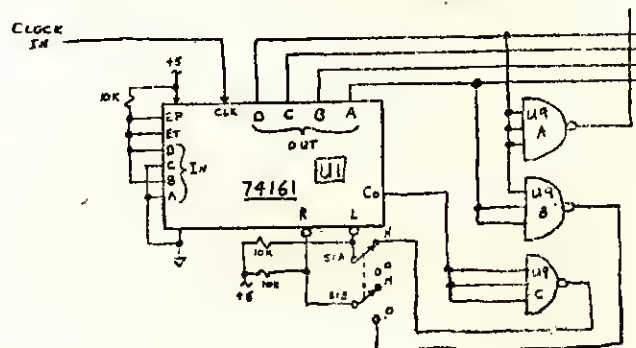
CUSTOM DESIGN SERVICES
ELECTRONIC CONSULTANTS
4021 WINDSOR DRIVE
GARLAND, TEXAS 75042

(214) 270.1965

December 24, 1975

Deer Mr. Cornell:

I was somewhet surprised to see e reprint of my BYTE
Symposium proposel in the Homebrew Computer Club News-
letter. The circuit shown hes e few errors (my feult).
Actually the circuit you printed wes from e section of
our breadboard we used to evaluate the feasibility of
using the eudio cessette tape units. It wes not optim-
ized nor anelyzed for parameter verietion. Consequently
I do not know whet success others will heve duplicating
the circuit. As I sey, its purpose was for breadboard
eveluation. We have since refined the circuit end intend
to begin manufacturing an essembled end tested module
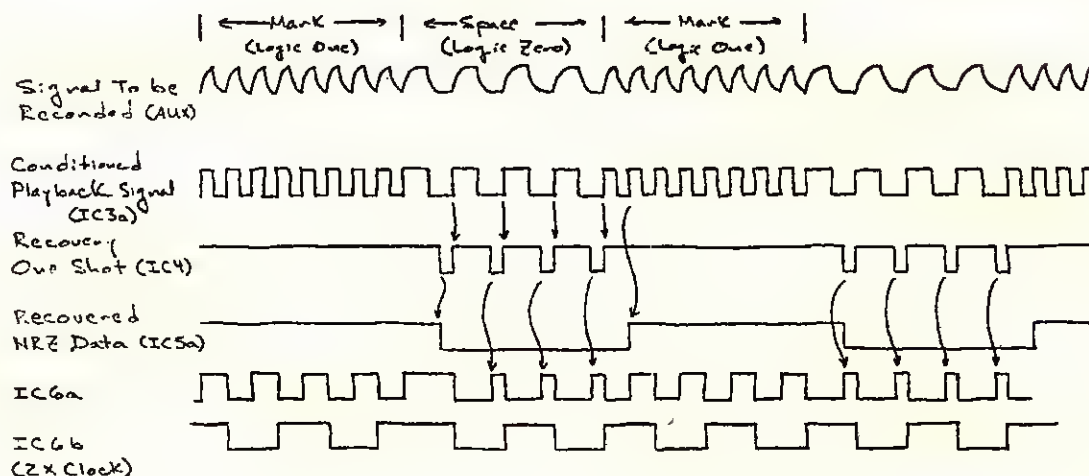in mid to late January. Expected single unit price will
be between $50 end $60.

I em including a copy of the schematic of our letest
configuretion for those of your readers who may wish to
"brew their own". Admittedly the circuit is more complex
then the minimum possible configuration. I feel thet
simplier configurations merely trensfer the complexity
to the software end tends to inhibit many would be users.
Actually the circuit may be implemented to nearly eny
level of function shown with compensating complexity in
the softwere end I would encourage those so inclined to
do so. The enclosed draft article provides some recommend-
dations end description of circuit operation.

Why CMOS? The circuit could just as well heve been
implemented with TTL. A number of the other products
manufactured by Pronetics Corp. with which I am associated
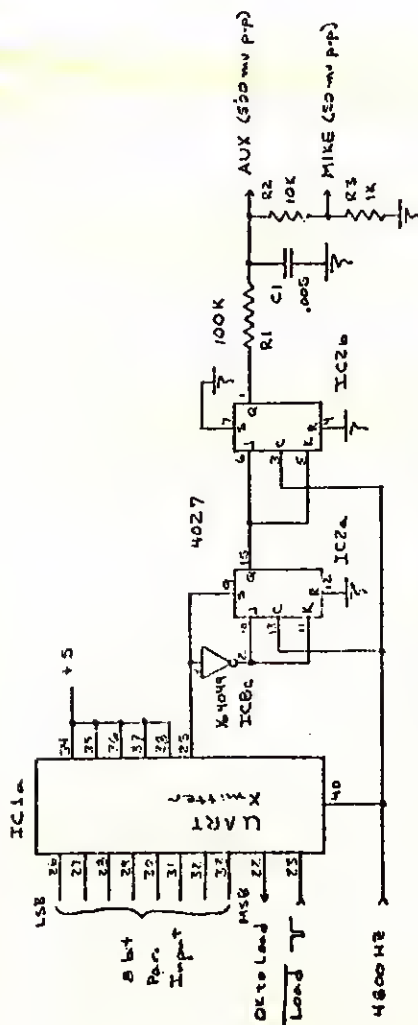ere implemented with CMOS hence the preference.

I will be happy to enswer questions your reeders may have
if they will include e self addressed stamped envelope.
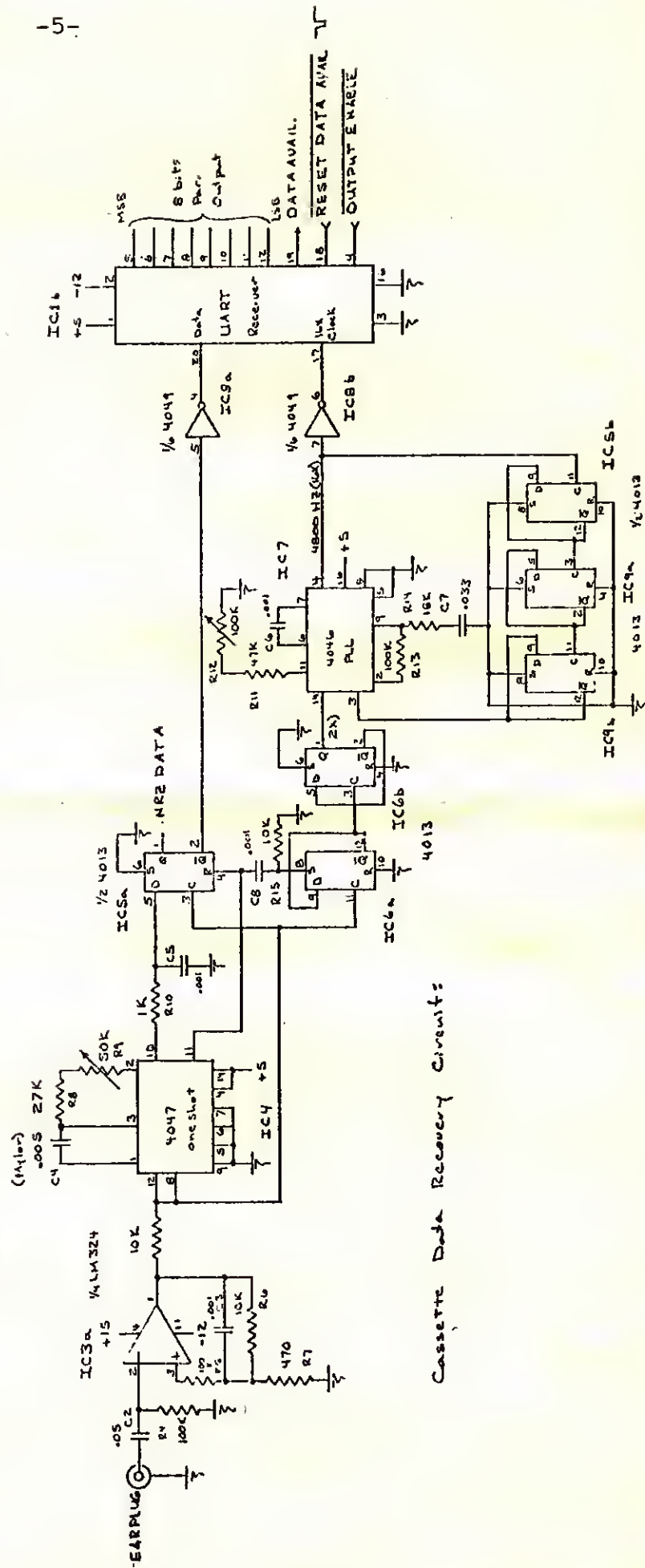
Sincerely,

Herold A. Mauch

Cassette Modulator/Demodulator wave forms

Adjust for 4800 Hz output

4800 Hz

+5

LM 555

.01

.01 Mylar

5K   8.2K   10K

Current of 4800 Hz Oscillator: use this circuit if a more precise and stable source of 4800 Hz is not available

Figure 2

IC1b   +5   -12

UART Receiver

MSB   8 bits Par. Output   LSB

DATA AVAIL.
RESET DATA AVAIL
OUTPUT ENABLE

2   3

Serial Data

Clock

1/6 4049   IC9a

1/6 4049   IC8b

4800 Hz (x4)

IC7

4046 PLL

R12 100K   C6 .001
R11 47K
R13 100K
R14 16K   C7 .033

IC5b

4013 IC9a

IC9b

IC6b   4013

IC6a   4013

NRZ DATA

1/2 4013   IC5a

C8 .001   R15 10K

R9 1K   R10   C5 .001

50K   R4

.005 27K   C4   R8

4047 one shot   IC4   +5

IC3a ¼ LM324   +15

10K

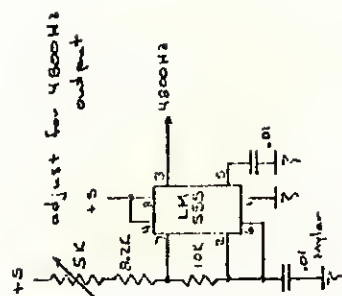EARPLUG

C2   R4 100K   R16 10K   R7 470

C3 .001   -12   +12

Cassette Digital Modulator:
This circuit converts 8 bit Parallel Input Data to a series of 2400 and 1200 Hz Tones for Recording on Cassette tape

Figure 1

AUX (500 mv P-P)   R2 10K
MIKE (550 mv P-P)   R3 1K

R1 100K   C1 .005

IC2b

4027

IC2a

1/4 4049   IC8c   +5

IC1a

UART Xmitter

LSB   8 bit Par. Input   MSB

Data Load
Load
4800 Hz

Cassette Data Recovery Circuits:

ARTICLES OF INCORPORATION

OF

HOME BREW COMPUTER CLUB

I

The name of this non-profit corporation is HOME BREW COMPUTER CLUB.

II

The purposes for which this corporation is formed are:

A. The specific and primary purposes are:

1. To promote the dissemination and exchange of computer related information, especially of an educational nature, by the organization of public meetings, the maintenance of a library and the publishing of a newsletter.

2. To support the development of educational materials, especially computer software, suitable for use by the home computer user.

3. To maintain centers through which members of the public involved with home, hobby or educational use of computers may obtain access to specialized computer equipment.

B. The general purpose and powers are to possess and exercise all rights and powers conferred upon non-profit corporations under the laws of the State of California.

C. This corporation shall not engage in activities that in themselves are not in furtherance of the charitable and educational purposes set forth in subparagraph (A) of this Article II.

III

This corporation is organized under the General Non-Profit Corporation Law of the State of California.

IV

The county in this State where the principal office for the transaction of the business of this corporation is to be located is Santa Clara County.

V

A. The number of trustees of this corporation shall be not less than five nor more than eight. The exact number of trustees within the limits specified herein shall be fixed by a bylaw adopted by the members or by the Board of Trustees.

B. The names and addresses of the persons who are to act in the capacity of trustees until the selection of their successors are:

----insert names----

VI

The number and qualifications of members of this corporation, the different classes of membership, if any, the voting, and other rights and privileges of members shall be as set forth in the Bylaws. Members, if any, shall not be assessable.

VII

A. The use of equipment owned by the HOME BREW COMPUTER CLUB in the development of any software shall be conclusive evidence that such software is in the public domain.

g. The property of this corporation is irrevocably dedicated to charitable purposes and no part of the net income or assets of this organization shall ever inure to the benefit of any trustee, officer or member thereof or to the benefit of any private persons. Upon the dissolution or winding up of the corporation, its assets, remaining after payment, or provision for payment, of all debts and liabilities of this corporation, shall be distributed to a non-profit fund, foundation or corporation which is organized and operated exclusively for charitable purposes and which has established its tax-exempt status under Section 501 (c) (3) of the Internal Revenue Code.

If this corporation holds any assets in trust, or the corporation is formed for charitable purposes, such assets shall be disposed of in such manner as may be directed by decree of the Superior Court of the county in which the corporation has its principal office, upon petition therfor by the Attorney General or by any person concerned in the liquidation, in a proceeding to which the Attorney General is a party.

IN WITNESS WHEREOF, the undersigned, being the persons hereinabove named as the first trustees, have executed these Articles of Incorporation this _____ day of _____, 197 .

----insert names----

State of California)
) ss.
County of Santa Clara)

On this _____ day of _____ 197 , before me, a Notary Public, duly commissioned and sworn, personally appeared _____ for the State of California, known to me to be the persons whose names are subscribed to the within Articles of Incorporation, and acknowledges to me that they executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal on the day and year first above.

_____

Notary Public

DATA FILE

MOTOROLA STANDARD HEX TAPE FORMAT -   Pittman

As more of the club members are acquiring 68ØØ-based systems,
we are getting programs in the Motorola standard hex tape format
which is supported by MIKBUC. MIKBUC is a mediocre monitor ROM
which turns up in a surprising number of systems. The hex tape
format is also supported by AMI, so a description of this format
may be useful to many of the club members.

The format defines a recorded block of ASCII characters, the
first of which is the (capital) letter "S", then one of the digits,
Ø, 1, or 9, followed by the remainder of the block in pairs of
hexadecimal digits (Ø-9, A-F), with each pair defining one binary
byte.

The first digit after the "S" signifies the type of record:

Ø   header record. This may be ignored, as it contains no useful
information.

1   Data record. This contains the load data and addresses that
you are interested in.

9   End of file record.

    S1NNAAAADDDDD..DDCC

Where "S1" define the data record, "NN" specify the number of
remaining bytes (=digit pairs) in the record as a hexadecimal
number, "AAAA" is the hexadecimal starting address for this block,
"DD" is one hexadecimal datum, and "CC" is the checksum of all
preceding bytes (except the "S1"), including byte count, address,
and data. The checksum is the binary sum (sithout carry) of bytes
in the record, complemented, so that the sum of the record, in-
cluding the checksum, is 255 or FF in hexadecimal.

    Example:

    SØØBØØØØ58 2Ø454454312E32ØE
    S11301ØØ7E Ø8F47E161417EØ13F7EØ1857EØ19D7E4Ø
    S9Ø3ØØØØFC

The first record is a header, with eleven (hex ØB) bytes after
the count, an address of ØØØØ, what appears to be the hexadecimal
representation of the ASCII text "Y EDT1.2" (possibly the program
name), followed by a checksum ØE.

The second record is a block of data, nineteen bytes (hex 13), of
which sixteen are actual data. The starting address is hex Ø1ØØ,
and the first byte, stored in that address, is 7E (the opcode of a
JMP extended); locations Ø1Ø1 and Ø1Ø2 receive the operand address
for that instruction, Ø8 and Fe respectively. And so on. The
third record is the end of file, with three bytes, an address of
zero, and a checksum of FC (note that Ø3 + ØØ + ØØ + FC = FF).

BULLETIN BOARD

MODEL 15 TELETYPE - In working condition, $50/offer. Solid State Music prototyping I/O board with regulator and some parts $18 (new). Tom Schmidt 964 9437.

WORLD ALTAIR CONVENTION - A tour plan has been arranged departing from Los Angeles for Albuquerque March 26, 1976 at 4:45 p.m. and returning March 28, 1976 at 6:20 p.m. Cost $128.28 person double occupancy or $144.23 per person single occupancy. Contact Majestic Travel Inc., 8601 Wilshire Blvd., Suite 503, Beverly Hills, CA 90211, telephone (213) 657-0441 or (213) 655-0810. Ask for Leda.

KSR 33 TELETYPES - Prices start at $600 for a rebuilt, as new, KSR 33. HOMEBREW COMPUTER CLUB members are offered 10 to 15% (depending on item) off if they identify themselves. Contact Mr. B. J. Worley, Data Terminals And Communications, 1190 Dell Ave., Campbell, CA 95008, telephone (408) 378-1112 extension 20.

HOMEBREW COMPUTER CLUB NEWSLETTER
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